



Features

- Resistance thermometer for direct temperature measurement on tanks and pipes
- Compact design
- High measurement accuracy
- Output signal:
 - Pt 100, 3-wire technology
 - 4...20 mA, 2-wire technology
- Process connections for food/pharmaceutical/
biotechnology
- Hygienic design
- Fast response
- Circular connector M12 or field housing

Options

- Explosion protection
- Classification per SIL 2
- Output signal 4...20 mA via programmable transmitter
- Pt 100, 4-wire technology
- Thermowell with reduced tip Ø 4 mm
- Electropolishing

Application area

- Food industry
- Pharmaceuticals
- Biotechnology

Applications

The resistance thermometer MiniTherm is suited for temperature measuring in tanks and pipes especially in hygienic applications. The change in resistance, dependent on the measurement temperature, can be detected and converted by a transmitter. Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

Technical Data

Mechanical design

The Pt 100 is integrated directly into a thermowell. Various types of process connections are available.

Electrical connection

circular connector with screw connection M12
Further electrical connections upon request.
Degree of protection: IP 67 per
DIN EN 60529

Temperature detecting element

- thermowell Ø 6 mm
option: reduced tip Ø 4 mm,
length see order code.
Upon request a calculation for thermo-
wells can be made (for static or dynamic
application) with certificate.
- flush mounted with PEEK insert for
temperature decoupling (for G 1/2 B)

Measuring resistor

1 x Pt 100, tolerances per class A per
DIN EN 60751

Output signal

- Pt 100, 3- or 4-wire technology (internal
connected, see connection diagram)
- 4...20 mA, 2-wire technology,
programmable, option

- auxiliary power 8.5...36 V DC
 - max. load (U=8.5 V)/0.023 A
 - overrange 3.6...23 mA, infinitely adjustable
 - error signal (following sensor breakage)
3.6...23 mA, infinitely adjustable
 - damping time 0...30 s
 - accuracy at 23 °C < 0.1 % of span
 - temperature effect < 0.13 %/10 °C.
- Further technical data see type series
PA2430, data sheet T4-082-1.

Temperature ranges

- ambient temperature -40...+ 85 °C
- process temperature -50...+200 °C
- allowed storage temperature -40...+100 °C

Process connections

designs see order code.
Gasket is not included !
Further process connections upon request.

Operating pressure

- max. 16 bar
- exception: Varivent D=68 Code A1512
- max. 10 bar

Materials

wetted parts stainless steel
mat.-no. 1.4404 (316L)

Functional safety

per EN 61508, classification per SIL 2;
without transmitter, only

Hygienic design

surface quality
surface roughness $R_a \leq 0.8 \mu\text{m}$
electropolished upon request

Response time

per DIN EN 60751, test procedure with flowing
water (without transmitter)

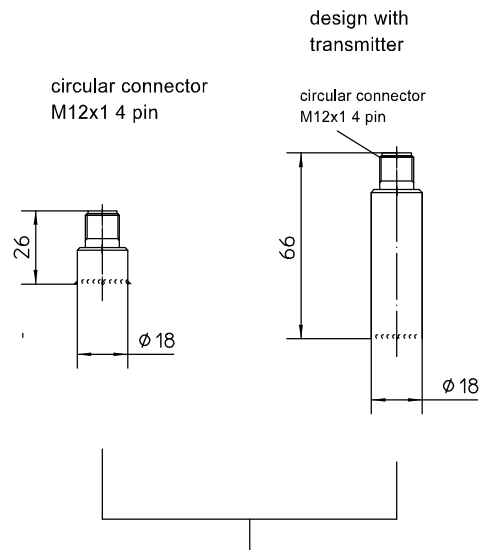
- thermowell 6 mm: T 90 = 5.5 s
- thermowell with reduced tip Ø 4 mm:
T 90 = 4.5 s

Ex-approval

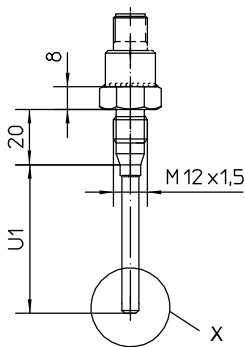
TÜV 08 ATEX 554093 X
 Ⓢ II 1G Ex ia IIC T6/T5/T4
 Ⓢ II 2G Ex ib IIC T6/T5/T4
 Ⓢ II 1D Ex iaD 20 T89°C
 Ⓢ II 2D Ex ibD 21 T129°C

$U_i \leq 30 \text{ V}$
 $P_i \leq 200 \text{ mW}$
 C_i and L_i negligible small
 (not available with transmitter)

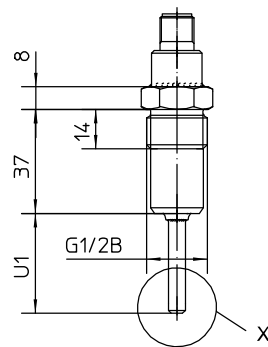
Dimensions



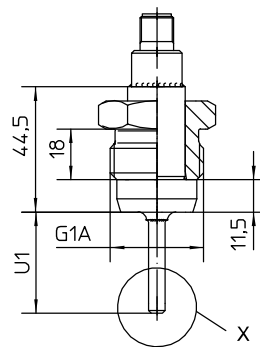
Process connection
diagramed with circular connector M12x1



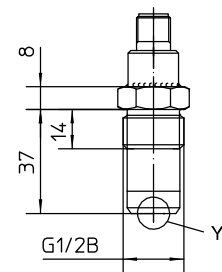
M12x1,5 dead-zone free
(conical taper of metal)



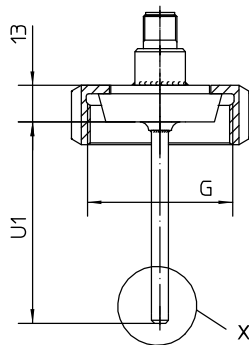
G1/2B dead-zone free
(conical taper of metal)



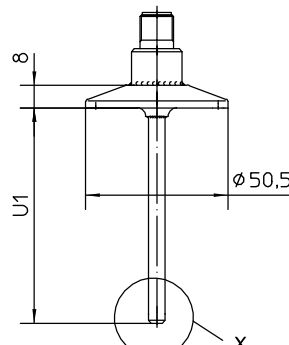
G1A dead-zone free
(conical taper of metal)



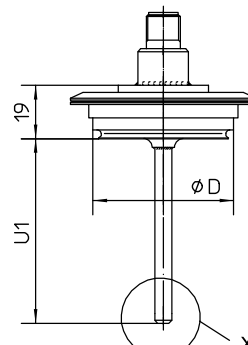
G1/2B dead-zone free
(conical taper)
design flush mounted



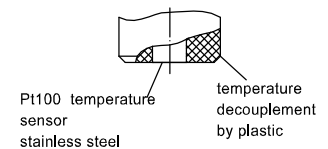
tapered coupling with
groove union nut DIN 11851
DN25 G=Rd.52x1/6
DN32 G=Rd.58x1/6
DN40 G=Rd.65x1/6



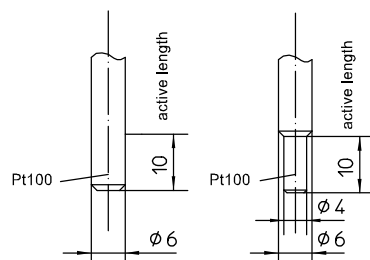
clamp connection
Tri-Clamp 1"/1 1/2"
ISO 2852 DN25/38
DIN 32676 DN25/40



Varivent connection
D=31 for Varivent-case DN10 and DN15
D=50 for Varivent-case DN25 and 1"
D=68 for Varivent-case
DN 40-125 und 1 1/2"...6"



design flush mounted Y



design of stem X

³ not with ex-protection, see data sheet T4-082-1